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10/685,140	10/14/2003	Clifford I. Drowley	SMal.7215	4511

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EXAMINER	
YAM, STEPHEN K	

ART UNIT	PAPER NUMBER
2878	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/685,140	DROWLEY ET AL.
	Examiner	Art Unit
	Stephen Yam	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20031014, 20040401*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 47, 51, and 53 is objected to because of the following informalities:

In Claim 47, line 8, Claim 51, line 8, and Claim 53, line 14, "aperturess" should be replaced with "apertures".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-17, 19-29, 31-33, 35-38, 40-47, 49-51, 53, and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al. US Patent No. 6,518,640.

Regarding Claim 1, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imager comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); and a two-dimensional array of microlenses (107/157) positioned over said two-dimensional array of photosensors (See Fig. 2, 8), each microlens being associated with a corresponding photosensor (see Fig. 2, 8), each microlens having a center point (see Fig. 2, 8); said microlens being positioned over said corresponding photosensor such that a center point of a

microlens is offset, in a first direction, from a center point of a corresponding photosensor (see Col. 10, lines 41-47 and Col. 145, lines 11-23, 46-49).

Regarding Claim 19, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imager, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); and a color filter array (104/154) positioned over said two-dimensional array of photosensors (see Fig. 2, 6, 8), said color filter array including a plurality of color filter areas (see Fig. 2, 6, 8), each color filter area being associated with a corresponding photosensor and having a center point (see Fig. 2, 6, 8); said color filter area being positioned over a corresponding photosensor such that a center point of a color filter area is offset, in a first direction, from a center point of a corresponding photosensor (see Col. 10, lines 23-40, 60-63).

Regarding Claim 31, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imager, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (See Fig. 2, 6, 8); and a layer of transmissive apertures (159) positioned over said two-dimensional array of photosensors (See Fig. 8), each aperture being associated with a corresponding photosensor and having a center point (see Fig. 8); said aperture being positioned over said corresponding photosensor such that a center point of a aperture is offset, in a first direction, from a center point of a corresponding photosensor (see Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52).

Regarding Claim 37, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imager, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (See Fig. 2, 6, 8); a two-dimensional array of microlenses (107/157) positioned over said two-dimensional array of photosensors (See Fig. 2, 8), each microlens being associated with a

corresponding photosensor (see Fig. 2, 8), each microlens having a center point (see Fig. 2, 8); a color filter array (104/154) positioned over said two-dimensional array of photosensors (see Fig. 2, 8), said color filter array including a plurality of color filter areas (see Fig. 8 and Col. 10, lines 23-47), each color filter area being associated with a corresponding photosensor and having a center point (see Fig. 2, 8); and a layer of transmissive apertures (159) positioned over said two-dimensional array of photosensors (See Fig. 8), each aperture being associated with a corresponding photosensor and having a center point (see Fig. 8); said microlens being positioned over said corresponding photosensor such that a center point of a microlens is offset, in a first direction, from a center point of a corresponding photosensor (see Col. 10, lines 41-47 and Col. 145, lines 11-23, 46-49); said color filter area being positioned over said corresponding photosensor such that a center point of a color filter area is offset, in said first direction, from a center point of a corresponding photosensor (see Col. 10, lines 23-40, 60-63); said aperture being positioned over said corresponding photosensor such that a center point of a aperture is offset, in said first direction, from a center point of said corresponding photosensor (see Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52).

Regarding Claim 43, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imaging system, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); a non-telecentric lens (167-1) (see Fig. 8b) positioned over said two-dimensional array of photosensors (see Fig. 8b); and a two-dimensional array of microlenses (107/157) positioned over said two-dimensional array of photosensors (see Fig. 2, 6, 8), each microlens being associated with a corresponding photosensor (see Fig. 2, 6, 8), each microlens having a center point (see Fig. 2, 6, 8); said microlens being positioned over said

corresponding photosensor such that a center point of a microlens is offset from a center point of a corresponding photosensor (see Col. 10, lines 41-47 and Col. 145, lines 11-23, 46-49), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 41-47 and Col. 14, lines 10-14, 46-49); said spatial variation being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said microlenses such that light sensitivity of each pixel is maximized (see Col. 2, lines 26-33 and Col. 14, lines 26-31).

Regarding Claim 49, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imaging system, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); a non-telecentric lens 167-1) (see Fig. 8b) positioned over said two-dimensional array of photosensors; and a color filter array (104/154) positioned over said two-dimensional array of photosensors (see Fig. 2, 6, 8), said color filter array including a plurality of color filter areas(see Fig. 2, 6, 8), each color filter area being associated with a corresponding photosensor and having a center point (see Fig. 2, 6, 8); said color filter area being positioned over said corresponding photosensor such that said center point of said color filter area is offset from said center point of said corresponding photosensor (see Col. 10, lines 23-31), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 28-40); said spatial variation being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said color filter areas such that crosstalk is minimized (see Col. 10, lines 32-40 and Col. 12, lines 6-10).

Regarding Claim 2, Suzuki et al. teach said microlens is positioned over said corresponding photosensor such that said center point of said microlens is offset, in a second direction (see Col. 17, lines 44-52), from said center point of said corresponding photosensor, said first direction being orthogonal to said second direction (see Col. 17, lines 44-52).

Regarding Claim 3, Suzuki et al. teach said first direction is radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 10, lines 32-40 and Col. 13, lines 49-59).

Regarding Claim 4, Suzuki et al. teach said microlenses are positioned over said corresponding photosensors such that a center point of each microlenses is offset from a center point of a corresponding photosensor (see Fig. 2, 8), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 41-47 and Col. 14, lines 10-14, 46-49).

Regarding Claim 5, Suzuki et al. teach said offset is spatially varying (see Col. 13, lines 49-59).

Regarding Claim 6, Suzuki et al. teach a color filter array (104/154) positioned over said two-dimensional array of photosensors (see Fig. 2, 8).

Regarding Claim 7, Suzuki et al. teach said color filter array comprises a plurality of color filter areas (see Fig. 8 and Col. 10, lines 23-47), each color filter area being associated with a corresponding photosensor and having a center point (see Fig. 2, 8); said color filter area being positioned over said corresponding photosensor such that a center point of a color filter area is offset, in a first direction, from a center point of a corresponding photosensor (see Col. 10, lines 23-31).

Regarding Claims 8 and 20, Suzuki et al. teach said color filter area is positioned over said corresponding photosensor such that said center point of said color filter area is offset, in a second direction, from said center point of said corresponding photosensor, said first direction being orthogonal to said second direction (see Col. 10, lines 60-63).

Regarding Claims 9 and 21, Suzuki et al. teach said color filter areas are positioned over said corresponding photosensors such that a center point of each color filter area is offset from a center point of a corresponding photosensor (see Fig. 2, 8), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 28-40).

Regarding Claims 10 and 22, Suzuki et al. teach said first direction corresponding to said color filter area offset is radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 10, lines 23-31).

Regarding Claims 11 and 23, Suzuki et al. teach said color filter area offset is spatially varying (see Col. 10, lines 29-32, 34-38).

Regarding Claims 12, 24, 46, and 50, Suzuki et al. teach a layer of transmissive apertures (159) positioned over said two-dimensional array of photosensors (see Fig. 8), each aperture being associated with a corresponding photosensor and having a center point (see Fig. 8).

Regarding Claims 13 and 25, Suzuki et al. teach said aperture is positioned over said corresponding photosensor such that a center point of an aperture is offset, in a first direction, from a center point of a corresponding photosensor (See Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52).

Regarding Claims 14, 29, and 32, Suzuki et al. teach said aperture is positioned over said corresponding photosensor such that said center point of said aperture is offset, in a second direction, from said center point of said corresponding photosensor, said first direction being orthogonal to said second direction (see Col. 17, lines 44-52).

Regarding Claims 15, 26, and 33, Suzuki et al. teach said apertures are positioned over said corresponding photosensors such that a center point of each aperture is offset from a center point of a corresponding photosensor (see Fig. 8), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 13, line 66 to Col. 14, line 5).

Regarding Claims 16, 27, and 35, Suzuki et al. teach said first direction corresponding to said aperture offset is radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 13, lines 49-59).

Regarding Claims 17, 28, and 36, Suzuki et al. teach said aperture offset is spatially varying (see Col. 13, line 66 to Col. 14, line 5).

Regarding Claim 38, Suzuki et al. teach said microlens is positioned over said corresponding photosensor such that said center point of said microlens is offset, in a second direction (see Col. 17, lines 44-52), from said center point of said corresponding photosensor, said first direction being orthogonal to said second direction (see Col. 17, lines 44-52); said color filter area being positioned over said corresponding photosensor such that said center point of said color filter area is offset, in said second direction, from said center point of said corresponding photosensor (see Col. 10, lines 60-63); said aperture being positioned over said

corresponding photosensor such that said center point of said aperture is offset, in said second direction, from said center point of said corresponding photosensor (see Col. 17, lines 44-52).

Regarding Claim 40, Suzuki et al. teach said microlenses are positioned over said corresponding photosensors such that a center point of each microlenses is offset from a center point of a corresponding photosensor (See Fig. 2, 8), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 41-47 and Col. 14, lines 10-14, 46-49); said color filter areas being positioned over said corresponding photosensors such that a center point of each color filter area is offset from a center point of a corresponding photosensor (See Fig. 2, 8), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 28-40); said apertures being positioned over said corresponding photosensors such that a center point of each aperture is offset from a center point of a corresponding photosensor (see Fig. 2), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 13, line 66 to Col. 14, line 5).

Regarding Claim 41, Suzuki et al. teach said first direction corresponding to said microlens offset is radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 10, lines 32-40 and Col. 13, lines 49-59); said first direction corresponding to said color filter area offset being radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 10, lines 23-31); said first direction corresponding to said aperture offset being radial with respect to a central point on a plane of said two-dimensional array of photosensors (see Col. 13, lines 49-59).

Regarding Claim 42, Suzuki et al. teach said microlens offset is spatially varying (see Col. 13, lines 49-59); said color filter area offset being spatially varying (see Col. 10, lines 29-32, 34-38); said aperture offset being spatially varying (see Col. 13, line 66 to Col. 14, line 5).

Regarding Claim 44, Suzuki et al. teach a color filter array (104/154) positioned over said two-dimensional array of photosensors.

Regarding Claim 45, Suzuki et al. teach said color filter array comprises a plurality of color filter areas (see Fig. 8 and Col. 10, lines 23-47), each color filter area being associated with a corresponding photosensor and having a center point (See Fig. 2, 6, 8); said color filter area being positioned over said corresponding photosensor such that said center point of said color filter area is offset from said center point of said corresponding photosensor (see Col. 10, lines 23-31), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 28-40); said spatial variation being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said color filter areas such that crosstalk is minimized (see Col. 10, lines 32-40 and Col. 12, lines 6-10).

Regarding Claims 47 and 51, Suzuki et al. teach said aperture is positioned over said corresponding photosensor such that said center point of said aperture is offset from said center point of said corresponding photosensor (See Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 13, line 66 to Col. 14, line 5); said spatial variation being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said

apertures such that stray light signals are minimized (see Col. 13, line 66 to Col. 14, line 6 and Col. 17, line 62 to Col. 18, line 2).

Regarding Claim 53, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imaging system, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); a non-telecentric lens (167-1) (see Fig. 8b) positioned over said two-dimensional array of photosensors; and a layer of transmissive apertures (159) positioned over said two-dimensional array of photosensors, each aperture being associated with a corresponding photosensor and having a center point (see Fig. 2, 6, 8); said aperture being positioned over said corresponding photosensor (see Fig. 2, 6, 8) such that said center point of said aperture is offset from said center point of said corresponding photosensor (See Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52), each offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 13, line 66 to Col. 14, line 5); said spatial variation being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said apertures such that stray light signals are minimized (see Col. 13, line 66 to Col. 14, line 6 and Col. 17, line 62 to Col. 18, line 2).

Regarding Claim 54, Suzuki et al. teach (see Fig. 1, 2, 6-8) an imaging system, comprising: a two-dimensional array (see Fig. 1) of photosensors (102/152), each photosensor having a center point (see Fig. 2, 6, 8); a non-telecentric lens (167-1) (see Fig. 8b) positioned over said two-dimensional array of photosensors; a two-dimensional array of microlenses (107/158) positioned over said two-dimensional array of photosensors (see Fig. 2, 6, 8), each microlens being associated with a corresponding photosensor (see Fig. 2, 6, 8), each microlens

having a center point (see Fig. 2, 6, 8); a color filter array (104/154) positioned over said two-dimensional array of photosensors (see Fig. 2, 6, 8), said color filter array including a plurality of color filter areas (see Fig. 2, 6, 8), each color filter area being associated with a corresponding photosensor and having a center point (see Fig. 2, 6, 8); and a layer of transmissive apertures (159) positioned over said two-dimensional array of photosensors (see Fig. 8), each aperture being associated with a corresponding photosensor and having a center point (see Fig. 8); said microlens being positioned over said corresponding photosensor (see Fig. 8) such that said center point of said microlens is offset from said center point of said corresponding photosensor (see Col. 10, lines 41-47 and Col. 145, lines 11-23, 46-49), each microlens offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 41-47 and Col. 14, lines 10-14, 46-49); said color filter area being positioned over said corresponding photosensor such that said center point of said color filter area is offset from said center point of said corresponding photosensor (see Col. 10, lines 23-40, 60-63), each color filter area offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 10, lines 28-40); said aperture being positioned over said corresponding photosensor such that said center point of said aperture is offset, in said first direction, from said center point of said corresponding photosensor (see Fig. 8 and Col. 13, lines 49-59 and Col. 17, lines 44-52), each aperture offset having an amount and a direction such that said amounts and directions spatially vary across said two-dimensional array of photosensors (see Col. 13, line 66 to Col. 14, line 5); said spatial variation of said microlens offsets being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of

photosensors and said microlenses such that light sensitivity of each pixel is maximized (see Col. 2, lines 26-33 and Col. 14, lines 26-31); said spatial variation of said color filter area offsets being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said color filter areas such that crosstalk is minimized (see Col. 10, lines 32-40 and Col. 12, lines 6-10); said spatial variation of said aperture offsets being determined based on optical characteristics of said non-telecentric lens and optical properties of said two-dimensional array of photosensors and said apertures such that stray light signals are minimized (see Col. 13, line 66 to Col. 14, line 6 and Col. 17, line 62 to Col. 18, line 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 18, 30, 34, 39, 48, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. in view of Asai et al. US Patent No. 5,986,704.

Suzuki et al. teach the imager in Claims 12, 24, 31, 37, 46, and 50, according to the appropriate paragraph above. Suzuki et al. also teach said layer of transmissive apertures is a layer of apertures (see Fig. 6, 8) such that the layer blocks (156) stray radiation and the apertures allow radiation to pass therethrough (see Fig. 6). Suzuki et al. do not teach the layer as a metal layer. Asai et al. teach (See Fig. 7A) a similar device with a layer of transmissive apertures (37a)

as a metal layer of apertures (see Col. 1, lines 52-55) such that the metal layer blocks stray radiation (see Fig. 7A). it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the layer as a metal layer as taught by Asai et al. in the imager of Suzuki et al., to provide efficient blockage and reflection of oblique light, and since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nagata et al. US 6,642,965, Takahashi et al. US 2001/0026322, Yamaguchi et al. US 6,344,666, and Rostoker US 5,734,155, teach similar devices with offset optical microlenses, filters, and/or apertures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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